



Thirty-First Annual Meeting of the Neurobehavioral Teratology Society and the Twenty-Sixth Annual Meeting of the Behavioral Toxicology Society

**Held in Conjunction with the 47th Annual Meeting of the Teratology Society and the 20th Annual Meeting
of the Organization of Teratology Information Specialists**

**Omni William Penn
Pittsburgh, Pennsylvania
June 23–27, 2007**

NBTS 2007 NEW INVESTIGATOR AWARD

BRIAN E. POWERS (nominated by S. L. Schantz)
Division of Neuroscience, University of Illinois, Urbana, IL.
Effects of developmental exposure to PCBS and methylmercury on the auditory system in rats.

NBTS 2007 CONFERENCE AWARDS

MELISSA M. BAILEY (nominated by J. Rasco)
Department of Biological Sciences, The University of Alabama, Tuscaloosa, AL.
Prenatal and lactational exposure to chromium picolinate and picolinic acid - the effects on the neurological development of mice.

LAUREN C. HARTE (nominated by D. Dow-Edwards)
SUNY Downstate, Brooklyn, NY.
Adolescent tetrahydrocannabinol improves performance on avoidance tasks in adult females.

NATHEN J. MURAWSKI (nominated by M. Stanton)
Department of Psychology, University of Delaware, Newark, DE.
Interstimulus interval discrimination conditioning of the eyeblink reflex in a rodent model of autism.

TORI L. SCHAEFER (nominated by C. Vorhees)
Cincinnati Children's Research Foundation, Cincinnati, OH.
Changes in corticosterone and monoamines following multiple days of (+)-methamphetamine or (±)-3,4-methylenedioxymethamphetamine exposure in the neonatal rat.

PROGRAM
Saturday, June 23, 2007

- 1:00 p.m.–6:00 p.m. NBTS Registration
Conference Room A Foyer
- 1:00 p.m.–2:30 p.m. NBTS Publications Committee Meeting
Conference Room C
- 1:30 p.m.–2:30 p.m. NBTS Public Affairs Committee Meeting
Conference Room B
- 2:30 p.m.–5:30 p.m. NBTS Council Meeting
Conference Room A

Sunday, June 24, 2007

- 8:30 a.m.–5:00 p.m. NBTS Registration
Conference Room A Foyer
- 10:00 a.m.–11:45 a.m. **NBTS Platform Session 1**
Urban Room
Chair — Sherry Ferguson
- 10:00 a.m.–10:05 a.m. **Opening of NBTS meeting.**
- 10:05 a.m.–10:25 a.m. **NBTS 1. Prenatal marijuana exposure and 6-year cognitive development.** L. GOLDSCHMIDT¹, G. A. RICHARDSON², J. WILLFORD¹ & N. L. DAY¹. ¹University of Pittsburgh School of Medicine, Pittsburgh, PA. ²Western Psychiatric Institute & Clinic, Pittsburgh, PA.
- 10:25 a.m.–10:45 a.m. **NBTS 2. The relation between prenatal marijuana exposure and PTSD: real or confounded?** C. LARKBY, L. GOLDSCHMIDT & N. L. DAY. University of Pittsburgh School of Medicine, Pittsburgh, PA.
- 10:45 a.m.–11:05 a.m. **Conference Award Recipient**
NBTS 3. Adolescent tetrahydrocannabinol improves performance on avoidance tasks in adult females. L. C. HARTE & D. DOW-EDWARDS. SUNY Downstate, Brooklyn, NY.
- 11:05 a.m.–11:25 a.m. **NBTS 4. Substance use and infant outcomes in pregnant women with mood and anxiety disorders.** M. B. KELLY, M. D. CORNELIUS, & K. L. WISNER. University of Pittsburgh, School of Medicine, Department of Psychiatry, Pittsburgh, PA.
- 11:25 a.m.–11:45 a.m. **NBTS 5. Fetal alcohol spectrum disorder (FASD)—biomarkers of exposure and effect.** S. W. JACOBSON¹, C. F. BEARER², M. E. STANTON³, M. J. BURDEN¹, C. D. MOLTENO⁴, E. M. MEINTJES⁴, & J. L. JACOBSON¹. ¹Wayne State University School of Medicine, Detroit MI, ²Case Western Reserve University, ³University of Delaware, ⁴University of Cape Town, South Africa.
- 12:00 p.m.–1:50 p.m. Lunch
- 2:00 p.m.–5:30 p.m. **NBTS/TS/OTIS Joint Symposium.**
Prenatal Drug Abuse and Adolescent Developmental Trajectories.
Sponsored by NIDA
Chairs: Peter Fried and Tony Scialli; Discussant: Nicolette Borek
Urban Room

- 2:00 p.m.–2:40 p.m. **NBTS 6. Developmental drug exposure and adolescent drug abuse: a preclinical perspective.** D. DOW-EDWARDS. State University of New York-Brooklyn, NY.
- 2:40 p.m.–3:20 p.m. **NBTS 7. Substance use in young adolescents who were prenatally exposed to drugs.** S. L. HANS. University of Chicago, IL.
- 3:20 p.m.–3:40 p.m. Break (joint with Teratology Society)
- 3:40 p.m.–4:20 p.m. **NBTS 8. Neurocognitive development in middle-school age and adolescent prenatally cocaine-exposed children.** L. C. MAYES & S. NICHOLLS. Yale Child Study Centre, New Haven, CT.
- 4:20 p.m.–5:00 p.m. **NBTS 9. Prenatal exposure to marijuana and cigarettes have differential effects on cognitive function in adolescent offspring: a longitudinal trajectory.** P. A. FRIED. Carleton University, Ottawa, Canada.
- 5:00 p.m.–5:30 p.m. Discussion: N. BOREK. National Institute on Drug Abuse.
- 6:15 p.m.–7:30 p.m. Welcoming Reception (TS/NBTS/OTIS) and Exhibits Open
William Penn Ballroom

Monday, June 25, 2007

- 8:30 a.m.–5:00 p.m. NBTS Registration
Outside of Urban Room
- 8:10 a.m.–9:00 a.m. **The Josef Warkany Lecture
(Joint with Teratology Society)
Fetal Alcohol Spectrum Disorders from Teratology to Public Health.**
ANN P. STREISSGUTH, University of Washington School of Medicine, Seattle, WA.
Grand Ballroom
- 9:00 a.m.–9:30 a.m. **The James G. Wilson Publication Award Presentation and Address
(joint with Teratology Society)
Grand Ballroom Foyer**
- 9:30 a.m.–9:45 a.m. Break (joint with Teratology)
Grand Ballroom Foyer
- 10:05 a.m. –11:50 p.m. **NBTS Platform Session II-
Urban Room**
Chair — Mary Gilbert
- 10:05 a.m.–10:25 a.m. **NBTS 10. Response to a novel environment is altered by anemia in male rhesus monkey infants.** M. S. GOLUB¹, J. P. CAPITANIO² & C. E. HOGREFE². ¹California Regional Primate Research Center, Davis, CA, ²University of California, Davis, CA.
- 10:25 a.m.–10:45 a.m. **NBTS 11. Childhood lead exposure decreases adult gray matter volume.** C. J. BRUBAKER¹, I. R. ELGOVAN², B. P. LANPHEAR², C. M. ADLER¹, K. N. DIETRICH¹ & K. M. CECIL². ¹University of Cincinnati, OH, ²Cincinnati Children's Hospital, OH.
- 10:45 a.m.–11:05 a.m. **NBTS 12. Prenatal thyroid hormone insufficiency produces an abnormal cell formation within the corpus callosum of the rat.** M. E. GILBERT¹ & J. H. GOODMAN². ¹US EPA, RTP, NC, ²CNRR, Helen Hayes Hospital, West Haverstraw, NY.

New Investigator Award

- 11:05 a.m.–11:30 a.m. **NBTS 13. Effects of developmental exposure to PCBs and methylmercury on the auditory system in rats.** B.E. POWERS¹, J. J. WIDHOLM², D. M. GOOLER¹, R. E. LASKY³ & S. L. SCHANTZ¹. ¹ Neuroscience, University of Illinois, Urbana, IL, ² Psychology, College of Charleston, Charleston, SC, ³ Health Science Center, University of Texas, Houston, TX.
- 11:30 a.m.–11:50 p.m. **NBTS 14. Evaluation of acoustic startle habituation and reflex modification (prepulse inhibition) within a single test session.** J. F. BARNETT Jr, A. J. FOSS; J. A. FOSS & A. M. HOBERMAN. Charles River Laboratories Preclinical Services, Pennsylvania Horsham, PA.
- 12:00 p.m.–1:00 p.m. Lunch
- 1:00 p.m.–2:00 p.m. **Brent Lecture (joint with Teratology and Behavioral Teratology)
Sponsored by Charles River
Alcohol and pregnancy: what have we learned in 30 years?**
K. L. JONES. University of California, San Diego, CA
Urban Room
- 2:00 p.m.–5:30 p.m. **OTIS/NBTS/TS Joint Symposium
Fetal Alcohol Spectrum Disorders (FAS/FASD)**
Chair — Dee Quinn and J. A. Wubah
Urban Room
- 2:00 p.m.–2:35 p.m. **NBTS 15. Measuring worldwide incidence of FASD.** C. CHAMBERS. University of California, San Diego, CA.
- 2:35 p.m.–3:10 p.m. **NBTS 16. Effects of prenatal alcohol exposure on brain and behavior.** E. P. RILEY & S. N. MATTSON. San Diego State University, San Diego, CA.
- 3:10 p.m.–3:45 p.m. **NBTS 17. Functional imaging studies of cognitive outcomes in FASD.** J. A. WILLFORD & N. L. DAY. Western Psychiatric Institute and Clinic, Pittsburgh, PA.
- 3:45 p.m.–4:05 p.m. Break (joint with Teratology Society and OTIS)
Grand Ballroom Foyer
- 4:05 p.m.–4:40p.m. **NBTS 18. Outcomes of pregnancies exposed to low to moderate levels of alcohol.** N. L. DAY & J. A. WILLFORD. Western Psychiatric Institute and Clinic, Pittsburg, PA.
- 4:40 p.m.–5:15 p.m. **NBTS 19. Imaging and mechanism studies in an FASD mouse model.** K. K. SULIK, J. DONG, E. A. MYERS, S. E. PARNELL, D. B. DEHART & S. CHEN. University of North Carolina, Chapel Hill, NC.
- 5:15 p.m.–5:30 p.m. Discussion
- 5:30 p.m.–7:30 p.m. **NBTS/TS/OTIS Poster Session I and Exhibits Open**
(Posters set-up 11:45 a.m.–5:30 p.m. and attended 5:30 p.m.–7:30 p.m.)
William Penn Ballroom
- NBTS 20. Establishment of a new mouse model of prenatal exposure to cocaine.** G. D. STANWOOD^{1,2} & J. P. PARLAMAN¹. ¹Department of ²Vanderbilt Kennedy Center for Research on Human Development, Vanderbilt University, Nashville, TN.
- NBTS 21. Effects of prenatal cocaine, alcohol, and lead exposures, and the home environment on cognitive outcome at nine years.** L. T. SINGER, S. NELSON, S. MINNES, E. SHORT, M. O. MIN, H. L. KIRCHNER, B. LEWIS, S. RUSS & N. KLEIN. Case Western Reserve University School of Medicine, Cleveland, OH.

NBTS 22. Environmental enrichment attenuates the behavioural effects of postnatal cocaine in the open field. A. MAGALHÃES¹, M. A. TAVARES^{1,3} & L. de SOUSA^{1,2}. ¹Inst. de Biologia Molecular e Celular; ²Inst. de Ciências Biomédicas Abel Salazar; ³Inst. de Anatomia, Faculdade de Medicina do Porto, Universidade do Porto, Portugal.

NBTS 23. Dopaminergic system response to an anxiogenic situation in rats chronically exposed to cocaine during adolescence. C. J. ALVES^{1,2}, A. MAGALHÃES¹, T. SUMMAVIELLE^{1,3}, L. de SOUSA^{1,2}, M. A. TAVARES^{1,4}, & P. R. MONTEIRO^{1,3}. ¹Instituto de Biologia Molecular e Celular da UP, ²Instituto de Ciências Biomédicas de Abel Salazar, ³Escola Superior de Tecnologia da Saúde do Porto do IPP, ⁴Faculdade de Medicina da UP, Porto, Portugal.

NBTS 24. Effects of prenatal cocaine exposure and lead on neuropsychological function using the CANTAB at 10 years. S. MINNES, L. T. SINGER, E. J. SHORT, L. KIRCHNER & S. SATAYATHUM. Case Western Reserve University Cleveland, OH.

NBTS 25. Prenatal intravenous (IV) cocaine: differential long-term effects on pre-attentive processes in females and males. L. L. HORD¹, K. M. WEBB¹, S. FITTING¹, R. M. BOOZE¹, B. J. STRUPP² & C. F. MACTUTUS¹. ¹University of South Carolina, SC, ²Cornell University, NY.

NBTS 26. Undernutrition in early life does not impair learning in young or aging animals. J. BALDWIN¹, N. CHERNOFF², M. GAGE², R. MACPHAIL² & M. E. GILBERT². ¹Meredith College, Raleigh, NC, ²US EPA, RTP, NC.

Conference Award Recipient

NBTS 27. Interstimulus interval discrimination conditioning of the eyeblink reflex in a rodent model of autism. N. J. MURAWSKI, K. L. BROWN, K. K. CHADMAN & M. E. STANTON. Department of Psychology, University of Delaware, Newark, DE.

NBTS 28. Long-term locomotor activity assessments appear insensitive to acrylamide treatment in young adult rats. S. A. FERGUSON, M. E. SMITH, J. D. GAREY, & M. G. PAULE. Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR.

NBTS 29. Morris water maze and dry-land complex maze performance appear insensitive to acrylamide treatment in young adult rats. M. E. SMITH, M. G. PAULE, J. D. GAREY, & S. A. FERGUSON. Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR.

7:30 p.m.–10:30 p.m.

Student Career Event
Sponsored by MARTA/MTA
Bob & Delores Hope Room

Tuesday, June 26, 2007

7:00 a.m.–8:30 a.m.

Sunrise mini-course (separate registration)
Developmental and Reproductive Toxicity Testing of Bio-Pharmaceuticals
Grand Ballroom

8:30 a.m.–4:00 p.m.

NBTS Registration
Outside of Urban Room

8:30 a.m.–10:20 a.m.

NBTS Platform Session III
Urban Room
Chair — Charles Vorhees

- 8:30 a.m.–8:50 a.m. **NBTS 30. Neonatal (+)-methamphetamine increases brain derived neurotrophic factor, but not nerve growth factor, during treatment and results in long-term spatial learning deficits.** M. R. SKELTON, M. T. WILLIAMS & C. V. VORHEES. Cincinnati Children's Research Foundation Cincinnati, OH.
- 8:50 a.m.–9:10 a.m. **NBTS 31. Developmental methamphetamine: effects of dose and rearing conditions on later path integration and spatial learning.** C. V. VORHEES, N. R. HERRING, T. L. SCHAEFER, M. R. SKELTON, C.E. GRACE, S. K. MIRANOWSKI & M. T. WILLIAMS. Cincinnati Children's Research Foundation Cincinnati, OH.
- 9:10 a.m.–9:30 a.m. **NBTS 32. Differential effects of 5-methoxy-diisopropyltryptamine or (\pm)3,4-methylenedioxymethamphetamine during development in rats.** M. T. WILLIAMS, T. L. SCHAEFER, N. R. HERRING, C. E. GRACE, M. R. SKELTON, H. L. JOHNSON & C. V. VORHEES. Division of Neurology, Cincinnati Children's Research Foundation, Cincinnati, OH.
- 9:30 a.m.–9:50 a.m. **NBTS 33. Prenatal exposure to tetrachloroethylene(PCE)-contaminated drinking water and the risk of learning and attention disabilities.** P. A. JANULEWICZ¹, R. F. WHITE¹, M. WINTER⁴, J. WEINBERG³, L. GALLAGHER¹, V. VIEIRA¹, T. WEBSTER¹ & A. ASCHENGRAU². ¹Department of Environmental Health, ²Epidemiology, ³Biostatistics, ⁴Data Coordinating Center, Boston University School of Public Health, Boston, MA.
- 9:50 a.m.–10:20 a.m. **NBTS 34. Complementary zebrafish and rat models of developmental neurobehavioral toxicity: the case of organophosphate pesticide exposure.** E. D. LEVIN¹, E. LINNEY² & T. A. SLOTKIN². ¹Department of Psychiatry² Duke University Medical Center, Durham, NC.
- 10:20 a.m.–11:00 a.m. Break
- 11:00 a.m.–12:00p.m. **NBTS 35. The Elsevier, Neurotoxicology and Teratology Sponsored Distinguished Lecture. If nicotine is a developmental neurotoxicant in animal studies, dare we recommend nicotine replacement therapy in pregnant women and adolescents?** T. SLOTKIN, Duke University Medical Center, Durham, NC.
Urban Room
Chair — Peter Fried
- 11:30 a.m.–1:30 p.m. **NBTS/TS Poster Session II and Exhibits Open**
(Posters set-up 9:00 a.m.–11:30 p.m. and attended 11:45 a.m.–1:30 p.m.)
William Penn Ballroom
- NBTS 36. Chronic low-dose acrylamide exposure reduces appetitive motivation in Fischer 344 rats.** J. GAREY, & M. G. PAULE. National Center for Toxicological Research/FDA Jefferson, AR.
- NBTS 37. Effects of chronic oral acrylamide exposure on incremental repeated acquisition (learning) performance in Fischer 344 rats through eight months of age.** M. G. PAULE & J. GAREY. National Center for Toxicological Research/FDA Jefferson, AR.
- NBTS 38. Infant neurobehavioral development following prenatal exposure to valproic acid for the treatment of maternal epilepsy.** J. L. GAVIN¹, A. CARTER¹, L. B. HOLMES² & J. ADAMS¹. ¹University of Massachusetts, Boston, MA, ²Massachusetts General Hospital for Children, Boston MA.
- NBTS 39. Academic relevance of reduced psychometric performance in children prenatally exposed to phenobarbital.** P. LEE¹, P. A. JANULEWICZ¹, R. DHILLON², L. B. HOLMES² & J. ADAMS¹. ¹University of Massachusetts, Boston, MA, ²Massachusetts General Hospital for Children, Boston MA.

Conference Award Recipient

NBTS 40. Prenatal and lactational exposure to chromium picolinate and picolinic acid — the effects on the neurological development of mice. M. M. BAILEY¹, M. B. TOWNSEND¹, P. L. JERNIGAN¹, J. STURDIVANT¹, J. F. RASCO¹, J. B. VINCENT² & R. D. HOOD^{1,3}. ¹Department of Biological Sciences, The University of Alabama, Tuscaloosa, AL, ²Department of Chemistry and Coalition for Biomolecular Products, The University of Alabama, Tuscaloosa, AL ³Ronald D. Hood & Associates, Toxicology Consultants, Tuscaloosa, AL.

NBTS 41. Effects of the HIV-1 proteins, Tat and gp120, on spatial learning and memory. S. FITTING, R. M. BOOZE & C. F. MACTUTUS. University of South Carolina Columbia, SC.

NBTS 42. Prenatal substance exposure: growth outcomes among 10-year-old offspring of teenage mothers. M. D. CORNELIUS, S. LEECH & C. LARKBY. Western Psychiatric Institute & Clinic Pittsburgh, PA.

Conference Award Recipient

NBTS 43. Changes in corticosterone and monoamines following multiple days of (+)-methamphetamine or (±)-3,4-methylenedioxymethamphetamine exposure in the neonatal rat. T. L. SCHAEFER¹, M. R. SKELTON¹, N. R. HERRING¹, G. A. GUDELSKY², C. V. VORHEES¹ & M. T. WILLIAMS¹. ¹Cincinnati Children's Research Foundation, Cincinnati, OH, ² University of Cincinnati, Cincinnati OH.

NBTS 44. Cocaine's impact on reward, activity, and affect are dose-dependently impacted by age: adolescent versus adult exposure. B. KELLY, A. FURR, A. FRANCHETTI, C. PERRY, H. ROHRER, H. STANLEY, L. ANDERSON-LOW, C. HUSTON, S. FERLAND & T. MITCHEM. Bridgewater College, Bridgewater, VA.

2:00 p.m.–3:15 p.m.

**NBTS/TS/OTIS Platform Session IV
Monongahela**

Chairs – J. Friedman & E. Francis

2:00 p.m.–2:15 p.m.

NBTS 45. Gene–environment interaction: impact of prenatal tobacco exposure and the DRD2 gene on neonatal regulation. K. A. ESPY¹, C. STOPP¹, J. HUGGENVIK², T. JAMESON², D. GILBERT, S. WIEBE¹, & P. STEWART². ¹University of Nebraska-Lincoln Lincoln, NE, ²Southern Illinois University, Carbondale, Illinois.

2:15 p.m.–2:30 p.m.

NBTS 46. Effects of valproic acid on gene expression in the rhombencephalon of day 12 rat embryos. C. J. STODGELL & G. GLAZKO. University of Rochester, Rochester, NY.

2:30 pm–2:45 p.m.

NBTS 47. Pharmacokinetics of psychotropic drugs in pregnancy. D. K. SIT, J. M. PEREL, J. HELSEL & K. L. WISNER. University of Pittsburgh, PA.

2:45 p.m.–3:00 p.m.

NBTS 48. Association between antidepressant use during pregnancy and infants born small for gestational age. É RAMOS^{1,2}, D. ORAICHI² & A. BÉRARD^{1,2}. ¹University of Montréal, ² CHU Sainte-Justine, Montréal, Québec, Canada.

3:00 p.m.–3:15 p.m.

NBTS 49. Effect of smoking cessation interventions during pregnancy on the newborn. A. BÉRARD^{1,2}, E. FERREIRA^{1,2} & D. ORAICHI². ¹University of Montréal, ² CHU Sainte-Justine, Montréal, Québec, Canada.

3:30 p.m.–5:30 p.m.

**NBTS Business Meeting
Urban Room**

7:00 p.m.–10:00 p.m.

**Social
Carnegie Science Centre — 2nd floor Exhibit Hall**

Wednesday, June 27, 2007

- 9:00 a.m.–12:00 p.m. **NBTS/BTS Joint Symposium.**
Brominated flame retardants — is there a parallel to pcb in terms of neurotoxicity and pending legislation?
Sponsored by Neurotoxicology and Teratology, published by Elsevier
Organizer and Chair — Vincent Markowski
Urban Room
- 9:00 a.m.- 9:05 a.m. **Introduction.** VINCENT MARKOWSKI
- 9:05 a.m.–9:35 a.m. **NBTS 51. Overview and evaluation of neurobehavioral effects of flame retardants in laboratory animals.** V. C. MOSER & J. R. GEE. Neurotoxicology Division, NHEERL, US EPA, RTP, NC, Curriculum in Toxicology, UNC, Chapel Hill, NC.
- 9:35 a.m.–10:05 a.m. **NBTS 52. Neural effects of polybrominated diphenyl ethers (PBDEs): links to behavioral effects and parallels with PCB exposure.** L. L. DRISCOLL. Department of Psychology, Colorado College, Colorado. Springs, CO.
- 10:05 a.m.–10:20 a.m. Break
- 10:20 a.m.–10:50 a.m. **NBTS 53. Thyroid disruption and behavioral impairments following developmental exposure to PBDEs: correlative or causative relationship?** V. P. MARKOWSKI. Maine Center of Toxicology and Environmental Health, University of Southern Maine, Portland, ME.
- 10:50 a.m.–11:20 a.m. **NBTS 54. DecaBDE exposures: old myths, new realities.** K. HOOPER. Environmental Chemistry Laboratory, Department of Toxic Substances, California EPA, Berkeley, CA.
- 11:20 a.m.–11:50 a.m. **NBTS 55. Risk assessment and regulation of PBDEs.** D. C. RICE. Maine Center for Disease Control, Augusta, ME.
- Meeting adjourned.